Remarks

Applicant requests reconsideration of the claims remaining in the application as amended above.

Claims 1-2 and 4-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Alexander et al. (USPN 4,720,133) in view of Higgins (USPN 6,513,407). Claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Alexander in view of Higgins as applied to claim 2, and further in view of Aydt et al. (USPN 5,829,821).

Claim 20 has been added to clarify the recitation in original claim 1 of the steps of the method of making a top stack linkage for a convertible top for vehicles by breaking out the separate injecting steps. In the first injecting step, magnesium is injected in its thixotropic state to form a one bow and front rail portion. The front rail is formed as an integral part of the one bow. In an additional injecting step, magnesium is injected in its thixotropic state to form a plurality of side rails. In a still further injecting step, magnesium is injected in its thixotropic state to form a plurality of links. In the final step of claim 20, the integral one bow and front rail portion is assembled together with the side rails, links and a plurality of bows to form the top stack linkage for the convertible top.

Claim 2 has been amended to claim the step of injecting magnesium in the thixotropic state to be consistent with newly added claim 20.

Claim 4 has been amended to depend from and specify that the injecting steps further include the step of molding a plurality of fasteners bosses, reinforcing ribs and pivot pin retainers on the front rail portion, the plurality of side rails and the plurality of links. Claims 5-7 have also been amended to depend from new claim 20.

New claim 21 is directed to a method of making a top stack linkage for a convertible top for a vehicle. According to the method, magnesium is heated to a thixotropic state. In the next step, the magnesium is injected in its thixotropic state to form a one bow and all of the rails of the top stack linkage and all of the links that connect the rails. Magnesium is also injected in its thixotropic state to form a plurality of end pieces for a plurality of bows that are spaced rearwardly from the one bow. In the next step of the claimed method, a plurality of central portions of the plurality of bows is extruded. Two of the plurality of the end pieces are

assembled to each of the plurality of central portions of the plurality of bows. The one bow and plurality of bows are then assembled to the rails and links of the top stack linkage. According to the method of claim 21, all of the structural parts of the top stack linkage, except for the central portions of the bows, are formed by injecting magnesium in its thixotropic state. The various pins, fasteners and other parts of the convertible top that are used to secure the rails and links together with the bows are not formed in a thixotropic molding process.

The patent to Alexander is relied upon for its teaching of making a top stack linkage for a convertible top by assembling a front rail, side rails and links together with a plurality of bows. The Alexander patent is silent as to how the various component parts of the convertible top stack linkage are manufactured and from the drawings it appears that they are simple stamped parts as are well known in the art. Such stamped parts suffer from an inability to hold close tolerances and result in tolerance stack-up that may adversely affect performance of the convertible top. The Examiner acknowledges in the Office Action that Alexander fails to teach molding magnesium in a thixotropic molding process.

The Examiner's *prima facie* case of obviousness also relies upon the Higgins patent that discloses a brake pedal that is formed in either a hydroforming process or, alternatively, in a Thixomolding® manufacturing process in which injection molded metal, such as molten magnesium, or aluminum is used to form metallic parts. The proposed combination is argued to be obvious because the thixotropic molding process produces components that are lighter, less expensive and have better surface finish.

Applicant traverses the Examiner's proposed combination of Alexander and Higgins because they fail to disclose several concepts that are the focus of new claim 20. One concept is that the one bow and front rail portions are formed in one integral part. Another concept is that of injecting magnesium in its thixotropic state to form a plurality of side rails and a plurality of links. By so doing, the principal structural parts of the top stack linkage that are combined are all made by the thixotropic molding process. After the parts are made, the process of assembling the parts together is greatly simplified due to the close tolerances that are able to be held by the thixotropic molding process.

With regard to new claim 21, the same advantages that flow from the concept of claim 20 in that the one bow, rails and links are formed by injecting magnesium in its thixotropic state are extended to the bow end pieces. Further, injection molded magnesium is also used to

form the end pieces for the plurality of bows. However, claim 21 specifies that the central portions of the plurality of bows are extruded instead of being formed in the injection molding process. In this case, Applicant has taken a further non-obvious step of not forming the central portion of the bows in one piece in a thixotropic molding process, but instead forms the central portions of the bows by extruding them and then assembling them to the thixotropic molded end pieces. In the event the Examiner stands by his *prima facie* case of obviousness that it is obvious to form all of the convertible top parts in a thixomolding process, the concept of providing bows that include thixomolded end pieces to which extruded central portions are assembled is submitted to be not obvious.

The Examiner in rejecting claim 2 relies upon Alexander at column 4, lines 33-37 that discloses providing a front bow having a central portion in the reference at column 4, lines 33-37 a brief reference is made to a depending center portion 31 to which the edge of the fabric of the convertible top 36 is attached by an adhesive. The Examiner's rejection then notes that Alexander and Higgins fail to teach providing a plurality of central portions of each of the bows and assembling two end portions to each of the central portions to form the plurality of bows. On the basis of the Examiner's *prima facie* case of obviousness, it is then argued by the Examiner's observation that it would be obvious to provide all of the bows of Alexander with a central portion to enhance the strength of the bows and improve the lifetime of the assembly as a whole. Applicant traverses the Examiner's obviousness contention since there is no teaching in Alexander of the method step of assembling an extruded aluminum central portion to a thixotropically molded end portion to form the bows of the top stack linkage.

Regarding claim 4, the Examiner again relies upon Alexander and Higgins for its teaching of providing a plurality of fastener bosses, reinforcing ribs and pivot pin retainers, referring to column 4, line 51 of Alexander where it is indicated that "An L-shaped pivot link 44 is fixedly connected to the outer end 40 of the second cross bow 22 and pivotally connected by means of a pivot pin to a bracket 46 mounted on the end of the pad 42. A fastener, such as a screw 48, extends through the pad 42 into the slot 18 in the pad 16 attached to the side rail 12." The Examiner correctly notes that Alexander fails to teach the bosses, ribs and pivot pin retainers on the front rail portion, the plurality of side rails and the plurality of links. However, the Examiner asserts that it would be obvious to provide these features to provide added strength to the connection of the links of the components to the stop stack linkage assembly and pivot pin

retainers to ensure that the pivot pins stay in their respective positions. Claim 4, however, specifies that the injecting steps further include molding the plurality of fastener bosses, reinforcing ribs and pivot pin retainers on the front rail portion, a plurality of side rails and a plurality of links. The Alexander reference recites these features, but does not indicate any method wherein the injecting steps including forming these structural features on the respective combination of parts.

Regarding claim 5, the Examiner asserts that molding a rear rail and at least one pressure link is taught by the proposed combination of Alexander and Higgins. However, the Alexander patent does not teach the molding step, but merely teaches the existence of a pressure link that is connected to a pressurized cylinder. Claim 5 is directed to the molding step which comprises injection molding a rear rail and at least one pressure link that is not disclosed or suggested by either Alexander or Higgins.

Regarding claim 6, the Examiner again relies upon the proposed combination of Alexander and Higgins. Alexander again points to the structure of a center rail and a rear rail being disclosed in Alexander, but does not disclose the method step of injecting magnesium in a thixotropic state to form these component parts of the top stack linkage.

Regarding claim 7, the Examiner again relies upon the proposed combination of Alexander and Higgins by pointing out that the Alexander reference includes a control link and a pressure link. Applicant traverses this rejection since neither reference teaches a method wherein four specific links are manufactured by injection molding thixotropic magnesium to form these parts.

Regarding claim 3, the Examiner again relies upon Alexander and Higgins as applied to claim 2 and further in view of Aydt et al. Aydt is relied upon for its teaching of providing a central portion of a bow that is formed in the aluminum extrusion process. Aydt teaches extruding the tensioning bow 36 as a bent extruded profile 42, but there is no disclosure of the method of making the end piece to which the extruded profile 42 is combined to form the tensioning bow 36. In addition, main hoop 21 appears to be a tubular member while the top section 13 is a die cast part. This hodge-podge approach to manufacturing a top stack linkage is exactly what Applicant's invention is intended to avoid.

In contrast to the Aydt patent, Applicant claims, particularly with respect to claim 21, injecting magnesium in a thixotropic state to form one bow and all of the rails of the top stack

linkage and all of the links that connect the rails. End pieces for the plurality of bows are also formed in an injecting step while the central portions of the bows are formed in an extrusion process. The precisely formed injection molded magnesium parts are then assembled together with the extruded central portion of the bow to form a superior top stack linkage for a convertible top. All of the structural parts of the top stack linkage, except for the central portions of the bows, spaced rearwardly from the one bow are formed by injecting magnesium in a thixotropic state.

Applicant requests that the Examiner telephone Applicant's attorney if it would advance the prosecution of this case. Applicant has attempted to amend the claims of the application to place them in condition for allowance. The Examiner is respectfully requested to pass this case to issue.

The Petition fee of $130.00 is being charged to Deposit Account No. 02-3978 via electronic authorization submitted concurrently herewith. The Commissioner is hereby authorized to charge any additional fees or credit any overpayments as a result of the filing of this paper to Deposit Account No. 02-3978.

Respectfully submitted,

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